Hydrogen Academy training courses

INTRODUCTION 2
Why hydrogen 2
What is the Hydrogen Academy? 3
Master of Hydrogen Safety 4

BASIC TRAINING 6
Introduction to hydrogen technology 6
Green hydrogen from electrolyser in qualitative and quantitative aspects 7
Ammonia and methanol as hydrogen carriers 8

ADVANCED TRAINING 9
Safety rules for hydrogen systems 9

SPECIALISED TRAINING - TECHNOLOGIES. RISK ASSESSMENTS AND ANALYSES 10
Health and safety when working in hydrogen explosive atmospheres 10
Process safety management on hydrogen plants. HAZOP analysis. Hydrogen detection systems. 11
Fuel cell as part of the hydrogen infrastructure 13
Project management for the implementation of hydrogen components and systems 14

SPECIFIC TRAINING - TECHNICAL SAFETY 15
Selection and installation of explosion-proof equipment in hydrogen gas atmospheres 15
Application of EP Directive 2014/68/EU (Pressure Equipment Directive) in the approval of hydrogen system components . 15

HYDROGEN TRAINING PROVIDED OUTSIDE THE HYDROGEN ACADEMY PROGRAMME . 18
Safety aspects in the design of hydrogen refuelling stations 18
Occupational health and safety at hydrogen refuelling sites at hydrogen refuelling stations 19
Course for applicants for the issue of Transport Technical Supervision qualification certificates required for the operation of filling equipment for hydrogen containers installed in vehicle and ship supply systems 20

HYDROGEN ACADEMY TRAINING CALENDAR 22
1st and 2nd half 2025 22
Training provided outside the Hydrogen Academy programme 23

LECTURERS AT THE HYDROGEN ACADEMY 24
Marek Foltynowicz 24
Dr.-Ing. Bartosz Ceran 24
Dr.-Ing. Renata Włodarczyk 25
Dr.-Ing. Tomasz Barnert 25
Grzegorz Orlikowski 26
Marcin Chorosz 27
Luke Kras 27
Pawel Cempura 27

INTRODUCTION

Why hydrogen

Hydrogen is the simplest and most common element, occupying ¾ of the volume of the Universe. It combines chemically with most of the other elements. Thanks to its properties, it can be a powerful source of energy while not polluting the environment.

Hydrogen has excellent energy properties. Its combustion energy per kilogram is greater than any other energy source currently in use. At the same time, it is a very clean fuel. It readily combines with oxygen to release energy in the form of heat, and the by-product is simple water.

Hydrogen is used in many industries: petroleum, chemicals, metals, food, electronics and many other areas of life. It is also used as a fuel for space shuttles.

Hydrogen is the fuel of the future for use in industry, land transport - road, rail and sea. Hydrogen provides the basis for a new approach to electricity storage and conversion - especially in the context of the development of Renewable Energy Sources (PV panels, off-shore).

Hydrogen installations are currently on the investment plans of Poland's largest companies.

The automotive industry has for many years been looking for alternatives to traditional fuels to power internal combustion engines. One of the more interesting solutions are hydrogen cells that power an electric motor.

Hydrogenisation of transport appears to be one of the most promising developments in the global economy. Hydrogen is an enabler for the emergence of zero-emission transport and modern energy and fuel technologies. Leading Polish fuel and chemical companies are involved in initiatives related to the dissemination of hydrogen as a fuel.

However, it should not be forgotten that hydrogen is also a hazard due to its flammable and explosive properties. Prevention in the form of appropriate procedures, safeguards and training is necessary to prevent dangerous incidents.

What is the Hydrogen Academy?

The Safety Academy is a coherent and comprehensive system of specialised and certified and certified training courses in the field of technical safety created by experienced specialists - practitioners associated with Automatic Systems Engineering - the Polish leader in explosion safety. The primary scope of the Safety Academy is explosion prevention. As of 2019, the Safety Academy training courses are implemented by the company EKO-KONSULT sp. z o.o.

Since 2006, Safety Academy training courses have been completed by several thousand participants from more than 300 companies and establishments, including Poland's largest industrial plants.

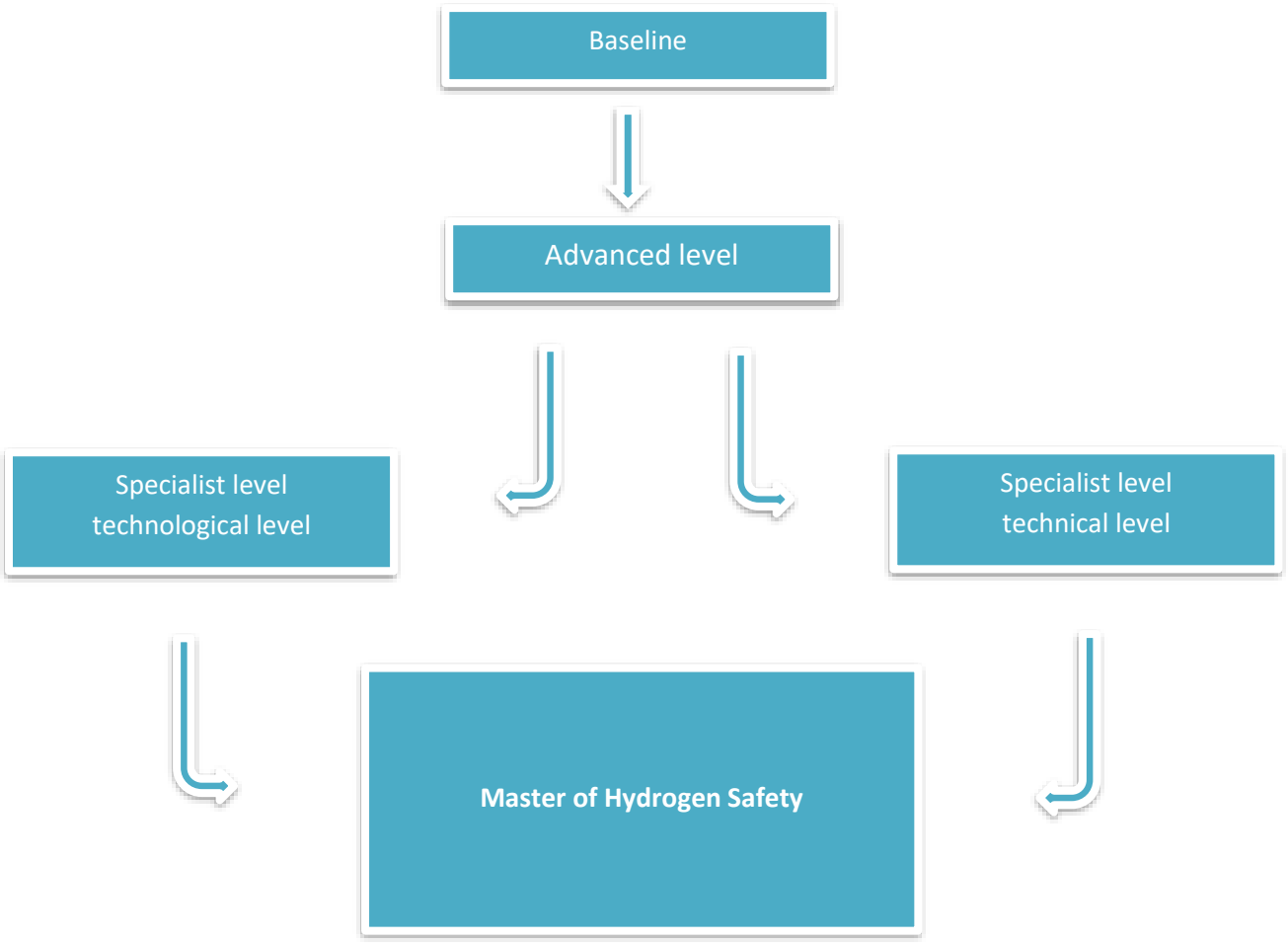
Taking into account the dynamic development of hydrogen technology and the resulting increase in the risks associated with the production, distribution and storage of hydrogen, the Safety Academy is creating the **Hydrogen Academy** - a series of profiled training courses taking into account the specific flammable and explosive properties of hydrogen.

Master of Hydrogen Safety

Participants in the Hydrogen Academy are offered competence development related to hydrogen safety.

Completion of the full training cycle as outlined below will be rewarded with *a Master of Hydrogen Safety* certificate issued by the *Hydrogen* Academy. This certificate certifies that the holder has undergone a full series of training courses to enable them to work effectively in a variety of positions related to the safety of hydrogen systems.

	Elective training: • Introduction to hydrogen technology • Green hydrogen from an electrolyser in qualitative and quantitative terms • Ammonia and methanol as hydrogen carriers
Advanced level	• Safety rules for hydrogen systems • Health and safety when working in hydrogen explosive atmospheres
Specialised technological level	Elective training: • Process safety on hydrogen plants. HAZOP analysis. Hydrogen detection systems • Fuel cell as part of the hydrogen infrastructure • Project management for the implementation of hydrogen components and systems. APQP4H licence
Technical specialist level	Elective training: • Selection and installation of explosion-proof equipment in hydrogen gas atmospheres • Application of EP Directive 2014/68/EU (Pressure Equipment Directive) in the approval of hydrogen system components • Lightning and surge protection of hydrogen infrastructure


Baseline
Advanced level
Specialist level
technological level
Specialist level
technical level
Master of Hydrogen Safety

BASIC TRAINING

Introduction to hydrogen technology

Description	The training is designed for engineers and managers looking for a compact and specialised training course introducing the whole hydrogen strategy. Training provided by an expert from the Hydrogen Cluster, a specialist with extensive experience in implementing new technologies in Polish industry.
Addressees of the training	managerial and staff
Host	Marek Foltynowicz
Programme	1. Types and "colours" of hydrogen 2. Industrial methods of hydrogen production • Steam reforming technology (large and small scale) • Electrolysis technology - types of electrolysers (ALK, PEM, AEM, SOE) 3. Hydrogen storage • Types of solid containers of hydrogen gas • Other hydrogen storage methods 4. Distribution, transport of hydrogen • Ways of distributing hydrogen in the form of hydrogen, ammonia , other chemical compounds • Means of gaseous hydrogen transport (pipelines, battery vessels, mobile tanks) • Temporary hydrogen refuelling points • Hydrogen filling stations 5. Use of hydrogen • Chemical and steel industry • Transport - cars, buses, locomotives, forklifts, ships, drones, aircraft) • Energy storage and power generation, grid stabilisation of el.en. • Heating of buildings
Duration	5-6 hours
Price	PLN 1 200 net per person

Green hydrogen from an electrolyser in qualitative and quantitative terms

Description	Water electrolysis is currently one of the most promising technology directions for hydrogen production and is used most readily where high puritý of hydrogen is required. Among all hydrogen production technologies, electrolysers are seen as the technology with the greatest potential to reduce the cost of hydrogen production in the near future.
Host	Dr Eng Renata Włodarczyk
Addressees of the training	Technologists, managers, staff responsible for implementing hydrogen technologies
Programme	• Properties of hydrogen as a fuel; • raw materials/technology for hydrogen production, hydrogen colours; • Electrochemical methods of hydrogen production, energy aspect, generations of electrolysers; • Thermal methods of hydrogen production, advantages and disadvantages; • Biological methods for hydrogen production, state of development and prospects; • Electrolysis and photolysis in the electrochemical aspect; • types of electrolysers (alkaline, PEM, high-temperature), leading manufacturers; • electrolysis in quantitative and qualitative terms, calculations related to hydrogen production; • Use of RES for electrolyser operation with examples from international projects; • hydrogen strategies in Poland and the European Union, legal acts related to hydrogen technologies. • prospects for the development of hydrogen technology - economic and environmental aspects.
Duration	5 hours + 1 hour for possible consultations
Price	PLN 1 200 net per person

Ammonia and methanol as hydrogen carriers

Description	Ammonia and methanol are a very important part of the hydrogen transformation. Ammonia allows hydrogen to be transported more easily because it condenses at a higher temperature than hydrogen and contains almost twice as much hydrogen per m3 as condensed hydrogen. Methanol can be produced by combining green hydrogen with CO2. In addition to its properties for convenient transport, it also serves as a green fuel. The training aims to provide an introduction to the use of ammonia and methanol and focuses on technical issues, including the efficiency and cost of each method.
Host	Dr.-Ing. Ewa Janicka
Addressees of the training	Technologists, managers, staff responsible for implementing hydrogen technologies
Programme	1. Ammonia as a hydrogen carrier • Characteristics of ammonia • Ammonia production • Advantages of ammonia as a hydrogen carrier • Challenges: ○ Toxicity and safety. ○ Conversion of ammonia back to hydrogen. 2. Methanol as a hydrogen carrier • Characteristics of methanol • Methanol production • Advantages of methanol as a hydrogen carrier • Challenges: ○ CO_2 emissions when burned. ○ Conversion of methanol back to hydrogen. 3. Comparison of ammonia and methanol • Hydrogen storage efficiency. • Production costs and infrastructure. 4. Future and applications • Potential applications: Industry, transport, energy. • Research and development: New technologies and innovations for hydrogen storage and transport.
Duration	3 hours + 1 hour for possible consultations
Price	700 PLN net per person

ADVANCED TRAINING

Safety rules for hydrogen systems

Description	The training is intended for all personnel, both supervisory and entry-level technical, working on hydrogen installations or preparing to work in these areas. It provides the knowledge necessary to understand the hazards present on hydrogen installations and how to prevent them. It is of great practical value to discuss general safety principles using the specific example of a hydrogen refuelling station. After all, this will be one of the most commonly designed and used elements of hydrogen infrastructure, and it is a place where all possible risks must be considered. The training is based on the requirements of ISO/TR 159162015 and meets the requirements of IECEx Unit Ex 011
Addressees of the training	Primary and secondary technical staff, health and safety services, staff responsible for implementing hydrogen technology
Programme	1. Introduction - key legislation, technical standards 2. Overview of hydrogen applications 3. Properties of hydrogen 4. Hydrogen hazards 5. Causes of accidental incidents 6. Safety of hydrogen systems using the example of a hydrogen filling station A. Hydrogen filling station components B. Refuelling stations in the context of the SEVESO Directive - Legal requirements if a station is classified as a lower-tier establishment C. Safe distances from other objects D. Classification of potentially explosive atmospheres E. Location of hydrogen system blow-outs F. Risk reduction measures at hydrogen refuelling stations G. Protection against static electricity. 7. Gas and flame detectors - location and requirements. 8. Summary
Duration	5 hours + 1 hour for possible consultations
Price	PLN 1 200 net per person

Health and safety when working in potentially explosive atmospheres hydrogen

Description	The training is intended for supervisory staff, health and safety services and technical staff of plants where hydrogen explosion hazard zones will occur (or are present).
Addressees of the training	Plant engineering personnel working on installations where hydrogen explosion hazard zones are present and persons responsible for the safety of the above installations.
Host	Grzegorz Orlikowski, Rafał Sieńko
Programme	1. Introduction - key legislation, technical standards 2. Formation of explosive atmosphere of hydrogen mixture 3. Properties of hydrogen that affect the risk of explosion 4. Minimum health and safety requirements in workplaces where a hydrogen explosive atmosphere may occur 5. Explosion protection document (EPD) • Classification of potentially explosive atmospheres • Explosion risk assessment. • Organisation of work in potentially explosive atmospheres. 6. The concept of explosion protection. • Principles of electrical and non-electrical equipment selection • Explosion containment devices - types, when to use them. 7. Principles of protection of work in hydrogen explosion hazard areas • Use of tools and equipment in hydrogen explosive atmospheres • Personal protective equipment (shoes, clothing, anti-electrostatic helmets) • Protection against static electricity in implementation for selected processes. • Implementation of hazardous works (fire hazardous works). 8. Summary.
Duration	5 hours + 1 hour for possible consultations
Price	PLN 1 200

Process safety management
On hydrogen installations. HAZOP analysis. Hydrogen detection systems.

Description	HAZOP analysis is one of the most widespread analytical methods for identifying hazards in a technological process involving the production/storage/distribution of hydrogen. HAZOP analysis is increasingly becoming a standard hazard identification method used in Polish industry. Due to its collaborative nature, it requires the participation of specialists from various fields. The safety level of hydrogen systems is significantly influenced by early, effective and reliable detection. The programme also covers the necessary functional safety knowledge base. The training has been developed on the basis of many years of experience in the field and legal and normative requirements. During the training, the participant has the opportunity to consult the basic issues of hydrogen detection at the plant.
Addressees of the training	Technical and managerial staff responsible for plant safety, potential participants in HAZOP sessions
Host	Tomasz Barnert, Łukasz Kras, Sławomir Bizewski

Programme	*Process safety*
	• Introduction to process safety management issues.
	• Discussion of the security life cycle of an industrial facility.
	• Discussion of risk management from a systems perspective.
	• An analytical approach to hazard and risk identification.
	• Discussion of the HAZOP method as a tool for analysing threats and operational problems.
	• Description of emergency scenarios:
	  ○ Characterise possible root causes of emergency events.
	  ○ Characterise possible consequences due to different loss criteria.
	  ○ Characterise possible risk reduction measures and their impact on safety levels.
	• Maintaining the assumed safety during the operational phase of the industrial installation.
	• Example of HAZOP analysis.
	• Competence management system.
	Hydrogen detection systems

	• Hydrogen detection systems: requirements, regulations; • Hydrogen: basic principles of explosion protection, ATEX issues in hydrogen detection systems; • Detection methods and design issues; • SIL issues in hydrogen detection systems;
Duration	5- 6 hours
Price	PLN 1 200 net per person

Fuel cell as part of the hydrogen infrastructure

Description	For the production of electricity and heat, the optimum solution using hydrogen is energy systems based on fuel cell technology. The fuel cell will therefore be one of the most common components of hydrogen technology - not only used in transport. The aim of the training course is to familiarise participants with the specifics of this technology and the conditions for its use.
Host	Dr Eng Renata Włodarczyk
Addressees of the training	Technologists, managers, staff responsible for implementing hydrogen technologies
Programme	• Design and principle of operation of the fuel cell; • classification and types of fuel cells; • materials used for the various components of the cell: selection, testing, life assessment; • Fuel cell losses, cell performance characteristics; • auxiliary equipment necessary for fuel cell operation; • The use of fuel cells on the example of international projects; • Hydrogen cell market: leading manufacturers, development trends; • legal aspects related to the deployment of fuel cells and hydrogen technologies; • hydrogen strategies in Poland and the European Union, legal acts related to hydrogen technologies; • The hydrogen economy: production, storage, transport and use of H2 - good practice
Duration	5 hours + 1 hour for possible consultations
Price	PLN 1 200 net per person

Project management for the implementation of hydrogen components and systems

Description	When undertaking work with a hydrogen project, we are faced with the fact that analyse the needs and requirements of the authorities so that the project we are carrying out fully meets them, but also so that the financial outcome of the project is positive. To achieve this, it is necessary to analyse all potential risk situations and plan preventive measures for each of them. Not all risks can be eliminated immediately, but you can certainly prepare for their occurrence and reduce their impact on the project. We teach you how to assess risks, plan activities and resources for risk management Participants in the training course receive licenses for the commercial use of the APQP4H tool.
Host	Paweł Cempura
Addressees of the training	Engineers and project managers leading the implementation of a hydrogen component and/or system. Purchasing staff involved in shaping the supplier portfolio. Investor representatives exercising technical control over the implemented project. Officials and staff of government entities responsible for overseeing gas infrastructure and hydrogen system deployment.
Programme	• Technological risk assessment of components • Project feasibility assessment • Evaluation of a hydrogen component supplier • Planning the project structure to establish the required levels of supervision. • Planning of activities and resources to meet the requirements of the project • Management of quality requirements, supervision and control of the correctness of the documentation required by the certification body for the approval of the hydrogen plant. • Surveillance of non-conforming product • Supervision of technological change.
Duration	6-7 hours + 1 hour for possible consultations
Price	PLN 1 200 net per person

SPECIFIC TRAINING - TECHNICAL SAFETY

Selection and installation of explosion-proof equipment in hydrogen gas atmospheres

Description	The training emphasises the practical aspects of selecting explosion-proof equipment operating in hydrogen atmospheres. It is based on the experience of the largest Polish companies and on proven operating practice. The scope of knowledge conveyed in the training coincides with the requirements of the PN-EN 60079-14 standard.
Addressees of the training	Technical personnel in workplaces where there are hydrogen explosive atmospheres, persons working in explosive atmospheres, persons responsible for the installation and operation of equipment in explosive atmospheres
Host	Marcin Chorosz
Programme	1. Principles of prevention of explosion of hydrogen atmospheres 2. Safety analysis. Classification of explosion hazard zones. Sources of ignition 3. Explosion-proof device designs used on hydrogen systems. Examples and description of equipment 4. Marking of explosion-proof equipment 5. Engine protection for hydrogen explosion zones 6. Protection of motors powered by frequency inverters 7. Grounding in hydrogen explosion hazard zones 8. Lightning protection system 9. Maintenance - scope of inspection and maintenance of explosion-proof equipment 10. Acceptance of technological installations 11. Carrying out repair and investment work 12. Safe execution of work in hydrogen explosion hazard areas
Duration	7 hours + 1 hour for possible consultations
Price	PLN 1 200 net per person

Lightning and surge protection of hydrogen infrastructure

Description	The aim of the training course is to comprehensively present the principles of lightning and surge protection on hydrogen systems and to familiarise participants with technical solutions to ensure the required level of

	protection. The training is provided by specialists from DEHN.
Addressees of the training	Electrical studio designers involved in hydrogen projects. Those responsible for the state of hydrogen installations.
Programme	1. Mechanism of lightning development and effects of lightning current in facilities containing hazardous areas including hydrogen systems 2. Regulations and standards on lightning protection and surge suppression rules, taking into account the specificities of hydrogen systems • general standards on lightning and surge protection • standards for potentially explosive atmospheres • selected guidelines from other countries 3. Basic principles of lightning protection of buildings and technical equipment. Principles for the designation of protected areas and safety/separation distances 4. Tools to facilitate the design of lightning protection systems 5. Basic information on surge protective devices and principles of surge suppression in electrical installations and signal transmission circuits • Construction of SPD: spark gap, varistor, diode. Device types (tripping, limiting, combined) according to IEC/EN standard. Type 1, Type 2, Type 3 - subdivided according to their role in limiting overvoltages (atmospheric, switching, induced) 6. Specifics of lightning protection for facilities containing hydrogen systems. Limitation of surges in intrinsically safe circuits • equipotential bonding rails for EX zones • SPD specifications for intrinsically safe circuits • intrinsically safe enclosures with SPD 7. The most common mistakes made in industrial facilities
Duration	5 hours + 1 hour for possible consultations
Price	PLN 1 200 net per person

Application of EP Directive 2014/68/EU (Pressure Equipment Directive) in the approval of hydrogen system components

Description	Manufacturers of components that form part of hydrogen systems are obliged to ensure that equipment that is sold in the European Economic Area complies with a number of directives. One document that has a significant impact on suppliers' obligations is the Pressure Equipment Directive (PED 2014/68/EU). The PED sets out the essential requirements for pressure

	equipment and assemblies, differentiated according to the pressure value, type of liquid or gas which is the medium handled by the equipment.
Host	Paweł Cempura
Addressees of the training	Persons involved in the manufacture, procurement, export, commissioning or distribution of pressure equipment and who understand the design and construction of pressure equipment, including - Design engineers - Supply staff - QA/QC staff - Technical managers
Programme	The course provides an understanding of the Pressure Equipment Directive and how it applies: • Understand the purpose and structure of EC directives • Identify the scope and key definitions in the Pressure Equipment Directive • Understanding the concept of essential safety requirements • Understanding of product and assembly classification requirements • Understanding the basics of conformity assessment • Clarification of the role of the notified body in conformity assessment • CE marking requirements • Understanding what needs to be done to meet the requirements The course will use practical examples and exercises using the APQP4H pressure (hydrogen) project management tool. Course participants will receive licences for commercial use of the APQP4H tool.
Duration	6-7 hours + 1 hour for possible consultations
Price	PLN 1 200 net per person

Safety aspects in the design of hydrogen refuelling stations

Description	Training intended for designers and those responsible for the safety of hydrogen refuelling stations being planned or designed
Host	Grzegorz Orlikowski

Programme	• Introduction
	• Hydrogen filling station components
	• Safe distances from other facilities, including liquid fuel tanks (e.g. petrol), public roads, power lines and others.
	• Classification of explosive atmospheres at hydrogen gas refuelling stations
	• Blow-out system requirements. Location of blow-outs from hydrogen systems
	• Risk reduction measures at hydrogen refuelling stations
	  ○ when discharging hydrogen from battery trucks,
	  ○ in hydrogen storage,
	  ○ when refuelling with hydrogen.
	• Protection against static electricity. Requirements for anti-static flooring.

Duration	5 hours + 1 hour for possible consultations
Price	Group training subject to individual pricing

Occupational health and safety at hydrogen refuelling sites at hydrogen refuelling stations

Description	The training is designed for drivers of vehicles, such as buses, or those operating dispensers at a hydrogen filling station.
Addressees of the training	Bus drivers, those responsible for safety and driver competence
Host	Grzegorz Orlikowski
Programme	• Introduction - key legislation, technical standards • Properties of hydrogen that affect the risk of explosion • Components of a hydrogen refuelling station. • Construction and working principle of a hydrogen dispenser. • Classification of explosive atmospheres at hydrogen gas refuelling stations • Safety rules during hydrogen refuelling • Risk reduction measures for hydrogen refuelling. • Responding to emergency situations.
Duration	5 hours + 1 hour for possible consultations
Price	Group training subject to individual pricing

Course for applicants for the issue of Transport Technical Supervision qualification certificates required for the operation of filling equipment for hydrogen containers installed in vehicle and ship supply systems

Description	The training is designed for drivers of vehicles, such as buses, or those operating dispensers at a hydrogen filling station.
Addressees of the training	Bus drivers, those responsible for safety and driver competence
Host	Piotr Lemanowicz
Programme	1. Performing technical supervision for tanks: • technical inspection bodies and the legal basis for their activities, • technical supervision regulations and other legislation relating to the filling of tanks, • technical tests carried out by TDT inspectors for tanks, • responsibility for technical supervision and operation of tanks, • requirements for stations and tank fillers, • unauthorised operation of tanks. 2. general and specific knowledge of the physical and chemical properties of a gas: • the basic physical and chemical properties of a gas, • formation of explosive mixtures with air, • temperature-dependent behaviour of the gas, • units of measurement, • risks from gas. 3. The design of the tanks and their essential parameters: • tank types, • basic requirements for the construction of tanks, • test pressure, filling pressure, working pressure, allowable pressure, vacuum. 4. Design and essential requirements for tank fittings: • fittings on the tank, • safeguards applied to tanks, • Gas-tight enclosure - purpose and required scope of application. 5. Description and labelling of tanks: • the required inscriptions and markings on the tank, on the tank nameplate. 6. Filling tanks - working and control activities: • general information about the filling station - equipment,

	construction, measuring instruments, • preparing the installation for filling, • requirements for containers to be filled and criteria for checking and eliminating containers from the filling process, • filling level control, • post-filling activities. 7. General health, safety and fire precautions: • principles of safe working with pressure equipment, • tools used in filling tanks, • personal protective equipment, • fire protection of filling stations, • the procedure to be followed in the event of overfilling, breakdown, fire or accident when filling tanks, • principles of first aid.
Duration	5 hours + 1 hour for possible consultations
Price	Group training subject to individual pricing

HYDROGEN ACADEMY TRAINING CALENDAR

1st and 2nd half 2025

Introduction to hydrogen technology (online)

- 11 March
- 30 September

Ammonia and methanol as hydrogen carriers (online)

- 18 March
- 7 October

Green hydrogen from electrolyser in qualitative and quantitative aspects (online)

- 14 March
- 1 October

Safety rules for hydrogen systems (online)

- 25 March
- 14 October

Health and safety when working in hydrogen explosive atmospheres (online)

- 27 March
- 16 October

Process safety management on hydrogen plants. HAZOP analysis. Hydrogen detection systems (on-line)

- 1 April
- 21 October

Selection and installation of explosion-proof equipment in hydrogen gas atmospheres (online)

- 8 April
- 28 October

Fuel cell as part of the hydrogen infrastructure (online)

- 3 April
- 23 October

Project management for the implementation of hydrogen components and systems. APQP4H licence

- 10 April
- 30 October

Application of EP Directive 2014/68/EU (Pressure Equipment Directive) in the approval of hydrogen system components

- 14 April
- 3 November

Lightning and surge protection of hydrogen infrastructure

- 15 April
- 4 November

Training provided outside the Hydrogen Academy programme

Training:

- **Safety aspects in the design of hydrogen refuelling stations**
- **Occupational health and safety at hydrogen refuelling sites at hydrogen refuelling stations**
- **Course for applicants for the issue of Transport Technical Supervision qualification certificates required for the operation of filling equipment for hydrogen containers installed in vehicle and ship supply systems**

we carry out on-demand, at times agreed upon with the client, either in person or online.

LECTURERS AT THE HYDROGEN ACADEMY

Marek Foltynowicz

Mr Marek Foltynowicz is a graduate of the Silesian University of Technology in Gliwice. He started his professional career as a research engineer at the Institute of Polymers of the Polish Academy of Sciences. He has spent most of his career in engineering working in several engineering offices and on construction sites in Poland and abroad.

Hydrogen expert of the Cluster of Hydrogen and Clean Coal Technologies at the Pomerania Regional Chamber of Commerce in Gdansk. Participates in the work of the Programme Board of subsequent PCHET hydrogen conferences organised by the Cluster.

Author of the studies:

- Poland is joining the European hydrogen economy
- The first Polish hydrogen filling stations by LOTOS Group
- Will buses run on hydrogen (co-author)
- Effectiveness of the hydrogen production, storage and utilization chain
- For charging trouble (co-author)
- For renewable energy problems - hydrogen cars (co-author)

Dr.-Ing. Bartosz Ceran

Bartosz Ceran, PhD, graduated from the Faculty of Electrical Engineering, Poznan University of Technology, majoring in Electrical Power Engineering. Since 2009, he has been an employee of the Institute of Electrical Power Engineering at the Poznań University of Technology.

His research interests are in the areas of power generation, and the use of renewable energy sources to produce hydrogen.

He is a member of the Polish Hydrogen and Fuel Cell Association.

In 2012, he completed a Research Internship in hydrogen fuel cells at Otto von Guericke University in Magdeburg.

In 2013, he completed a research internship in hydrogen fuel cells at the Energy Conversion Laboratory of the Faculty of Mechanical and Power Engineering at Wrocław University of Technology.

In 2017, he defended his doctoral thesis entitled. "Fuel cells in distributed power generation systems".

His scientific publications are on the topic of hydrogen production and storage using renewable energy sources.

Dr.-Ing. Renata Włodarczyk

Assistant Professor in the Department of Advanced Energy Technologies at the Faculty of Infrastructure and Environment of Częstochowa University of Technology. Serves as Development Manager of the Faculty of Infrastructure and Environment at MSc.

Dr Renata Włodarczyk's research interests include.

- materials used in the energy industry with a particular focus on materials for fuel cells;
- renewable energy;
- Hydrogen as a fuel, how it is obtained, storage, properties;
- Fuel cells: construction, performance analysis, use of cells.

Dr Renata Włodarczyk is the author of more than 30 publications in Journal Citation Reports (JCR) journals with an impact factor (IF). She is a member of, among others, the Scientific Council of the Wielkopolska Hydrogen Platform and the Hydrogen and Fuel Cell Association.

Dr.-Ing. Tomasz Barnert

Certified functional safety specialist in the area of process safety No. CFSP 150619 001 (CFSE Governing Board USA international certification).

Process and functional safety analysis specialist, at Automatic Systems Engineering Sp. z o.o. since 2014. (Since 2019 as Eko-Konsult Sp. z o.o.) Master's degree in automation engineering. Graduate of the Gdansk University of Technology, completed his master's and doctoral studies at the Faculty of Electrical Engineering and Automation. Specialist in the field of safety and reliability, industrial risk analysis and assessment, as well as functional safety.

He has proven knowledge and experience related to process safety analysis and functional safety management in the life cycle of high-risk technical facilities.

Experienced and competent analyst responsible for preparing, carrying out and documenting industrial safety analyses in such sectors of the economy as the process and chemical industry, oil and gas extraction and processing, power generation, and the food industry.

Author of more than 30 publications, concerning industrial safety issues, in Polish and foreign scientific and scientific-technical journals. Author of presentations at international safety and reliability conferences. He has participated in research and development projects coordinated by the Central Institute for Labour Protection - National Research Institute (CIOP-PIB).

Has knowledge of various analytical methods and tools such as risk graphs, risk matrices, LOPA, HAZOP, FTA, RBD, FMEA/FMECA. Uses specialist software from BQR Care (RBD, FTA, FMECA), CaraFT (FTA), Exida exSILentia, TNO Effects.

Member of the Polish Society for Safety and Reliability (PTBN), which is part of the European Safety & Reliability Assocciation (ESRA). Member of the Network Technologies and Safety Engineering Group at the Gdansk University of Technology.

Process and functional safety trainer at the ASE Safety Academy. Instructor at training courses for certification of persons responsible for functional safety in Polish industry at the Gdansk University of Technology. He has many years of experience in imparting knowledge on industrial safety.

Grzegorz Orlikowski

Long-time employee of Automatic Systems Engineering and then of EKO-KONSULT, a company belonging to the ASE Technology Group.

Experienced process safety engineer, author of several hundred explosion safety analyses, including for companies such as:

- ArcelorMittal Dabrowa Gornicza steelworks,
- IKEA Industry
- LOTOS Petrobaltic,
- PGE Dolna Odra Energy Plant,
- MONDI Świecie,
- HEINEKEN - Warka Brewery

Mr. Grzegorz Orlikowski has been involved as a specialist in projects on the use of green hydrogen

- Explosion hazard assessment for hydrogen powered vehicles
- Explosion risk analysis for:
    - assembly stations for hydrogen vehicles,
    - hydrogen charging station for battery trucks
    - hydrogen filling stations
    - electrolysers and fuel cells.

Marcin Chorosz

Experienced practitioner, long-time employee of the Gdańsk Refinery of LOTOS Group SA (currently Rafineria Gdańska sp. z o.o.), engineer of the Planning and Supervision of Electrical Repairs Department, for more than ten years has been actively involved in issues related to the operation of explosion-proof equipment - including hydrogen installations. Marcin Chorosz was responsible for commissioning explosion-proof equipment as part of the EFRA project at the Gdańsk Refinery.

Graduate of the GIG postgraduate course" Technical safety in potentially explosive atmospheres" and holder of the mEx Certificate of Competence No. Ex/0051/2015 MEx "Manager responsible for explosion safety matters", participant in numerous courses on the safety of explosion-proof installations

Lukasz Kras

Experienced specialist in industrial automation systems and functional safety. Head of the Design Team at the Azoty Automation Group in Tarnow with practical knowledge of hydrogen systems at the Azoty Group Nitrogen Plant in Tarnow. Has participated in HAZOP sessions as a presenter for many years.

Long-time associate of Automatic Systems Engineering and EKO-KONSULT in the field of industrial safety analysis. For many years, he has been providing training in process safety, functional safety and ATEX. Certified functional safety specialist of the first degree in accordance with PN-EN 61508-1:2004 - certificate no: UDT-CERT/B/B FUNK/55/11

Pawel Cempura

Mr Pawel Cempura is a graduate of the Faculty of Electrical Engineering at the Wrocław University of Technology with a specialisation *in electric power engineering of industrial and municipal plants*. He also graduated from the Wrocław University of Economics, Faculty of Management, Information Technology and Finance with specialisation in *Financial Analysis and Performance* Management, as well as from Executive MBA studies at the Warsaw School of Economics.

He started his professional career more than 20 years ago and directed it into the areas of project management and quality management in the manufacturing and automotive industries. He has been involved in industrialisation and process line commissioning projects as a project manager in both Poland, Western Europe and Asia.

Project management expert for the supply chain of hydrogen components and systems, with a particular focus on Green Hydrogen and electricity storage technologies.

Author of project management tool: *APQP4H Risk analysis, activity planning, project and quality management, component implementation and hydrogen systems.*